

Work Order ID 73136

Friday, August 26, 2011 6:48:55 AM

Page 1

Item ID: D206-642-251

Accept

Setup Start

Revision ID:

Stop

Item Name: Replacement Skidtube

Start Date: 8/26/2011 Start Qty: 1.00

Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr

Revision Nbr

D3804

A

IIN-D206-642

N

0.00

100



DC

Document Control

DOCUMENT CONTROL

Memo

0.00

Photocopy bluefile & type labels per PPP D206-642-251

CHG001

8 x 1/2/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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110

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Deburr Fwd edge of tube

2- Remove ridge on inside of Fwd edge of tube as per Dwg D3804

3-Weld Fwd Cap as per Dwg D3804. Use aluminum rod. Grind D2647 to fit as required.

Pick:

Qty ☐ Part Number ☐ Description ☐ Batch  
A/R ☐ Aluminum Rod ☐ *M112860*

4-Grind weld flush to cap on top surface only.

5-Cut Aft end as per dwg D3804 from front of tube and Deburr

6-Remove inner indexing ridge on Aft end of skidtube as per Dwg D3804

7-Open holes for Aft end cap as per Dwg D3804 with #30 Drill Bit using DT8025.

8-Drill pilot holes using Dt 8167. ✓

9-Locate DT8732 from inner Aft saddle hole &amp; 3rd crossbolt hole. Insert D3286-1 doubler using DT8732 &amp; D206-642-241-T1, then locating doubler off of 3/16" holes, cleco DT8732 &amp; doubler leaving DT8732 for added support. ✓

10- Drill D3286-1 doubler rivet holes in tube using # 40 drill, spot drilling doubler at the same time. ✓

*mo/JP**11-09-15**BE 11/09/15*  
*BE 11/09/15**DL 11/11/30*

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11-Working from the center out, drill # 30 holes into D3286-1 doubler. Cleco each hole as it is being drilled. Verify angle of holes to accommodate rivet heads.

12-Remove 3/16" cleco's only and open GHW holes to Ø0.500" as per Dwg D3804

13-Remove D3286-1 doublers, identify orientation, deburr, then attach them to the workorder

14-Remove indexing edge using DT8741 as per Dwg D3804

15-C'sink GHW rivet holes as per Dwg D3804

120



QC

Quality Control

QC6- Inspect dimensions to drawing

0.00

Memo

0.00

11/11/30

11 12-01 (1)

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[illegible]

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**Accept**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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**Setup Start**[illegible]

**Stop**

[illegible]

1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

**Cust Item ID:**

**Customer:**

**Reference:**

Run Start

[illegible]

**Stop**

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_



## Insp. Stamp

0.00

[illegible]

## Skidtubes

0.00

## Skidtubes

## Memo

1-Open crossbolt holes to Ø0.3125"

2- Open Aft cap hole #6.

\*\*\*no wearplate holes for this skidtube\*\*\*

### 3-Deburr tube and blow out chips from inside the tube

0.00



Chemical Conversion Coat per QSI005 4.1

0.00

HandFinish

## Memo

### Hand Finishing

0.00

**THE UNIVERSITY OF CHICAGO**

QC3- Inspect Part Finish

0.00

OC

## Memo

## Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries



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Item Name: \* Replacement Skidtube

Start Date: 8/26/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 	Skidtubes	0.00							
Skidtubes	<b>Memo</b>	0.00							
Skidtubes	1-Open holes to finished size as per Dwg D3804, (without cutting fluid)								
	2-C'sink crossbolt spacer holes as per Dwg D3804(without cutting fluid)								
	3-Debur and blow out all chips from inside the tube								
170 	QC6- Inspect dimensions to drawing	0.00							
QC	<b>Memo</b>	0.00							
Quality Control									

*Handwritten signature and date: 11-12-2*

*Handwritten date and initials: 1 8 BE 11-12-02*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Customer:

Reference:

Run Start



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Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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180

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Locate, install and rivet doublers as per Dwg D3804. Micro-shave rivets as required

2-Bond D2654-3 web in place as per QSI 015. Ensure holes line up. Allow 12 Hrs. cure time before cutting

Start Date: ☐ 11-12-3 ☐ Time: ☐ 11AM ☐

Finish Date: ☐ 11-12-5 ☐ Time: ☐ 1130

Pick:

Qty ☐ Part Number ☐ Description ☐ Batch

A/R ☐ Sikaflex-291 ☐ 119399 ☐

Sikaflex expire date: ☐ 12-8-13

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

*DP 11-12-3*

*1 of BE 11-12-05*

W/O:		WORK ORDER CHANGES					
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Sequence ID/  
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Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

200

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-remove alodine from around hole and prepare for welding

2-Prep per QSI 005 and Insert D2649 crossbolt spacers. Weld as per QSI 004 and Dwg D3804. Remember to back drill each hole to 0.25" before welding the other side. Use aluminum rod.

Pick:

Qty ☐ Part Number ☐ Description ☐ Batch

A/R ☐ Aluminum Rod ☒ m117889

3-Grind welds flush as per Dwg D3804.

BB 11/12/05

4-Using DT8733, insert (2) D3286-3 spacers as per QSI 004 and Dwg D3804. Remember to back drill each hole to Ø0.402" before welding other side. Use SS rod as required.

A/R ☐ SS Rod ☒ NONE

BE 11-12-05

5-Counterbore 5/16" x 0.750" deep except 7th hole from Aft end as per Dwg D3804. Deburr

DD 11-12-5

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Ship Wed Dec 7

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Qty

Reject  
Number

Insp.  
Stamp

240

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

Hand Finishing

1 0211-12-6

250

White Gloss(Ref.4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME: 12:00  
OVEN TEMPERATURE: 320 °F  
FINISH TIME: 12:30

1 X P M-11/12/06

260

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 11/12/14

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
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270

0.00



HandFinishing

HandFinish

Memo

0.00

Hand Finishing \*

1-Install D2651-3 O-Rings on D2651-1 plugs with Petroleum Jelly and install plugs as per Dwg D3804. Clean excess adhesive.

1 Rn 6 M 2/12/11

280

0.00



HandFinishing

HandFinish

Memo

0.00

Hand Finishing

1-Install D2646 Aft Cap and seal with Sikaflex. Clean excess adhesive  
A/R ☐ Sikaflex-291 ☐ 1114443  
Sikaflex expire date: ☐ 12/10

2- Install wearplate as per dwg

2-Wing Walk as per Dwg D3804 and QSI 005 4.4  
Batch: 1114094

1 Rn 6 M 2/12/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 73136



Page 11

Friday, August 26, 2011 6:48:55 AM

Item ID: D206-642-251

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 8/26/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

290

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

300

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

310

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-642-251

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

5-12/14

5-12/14

Packaging

CC

11/12/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Work Order ID 73136



Page 12

Friday, August 26, 2011 6:48:55 AM

Item ID: D206-642-251

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 8/26/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/9/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

320

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/12/14

MF  
11-12-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Friday, August 26, 2011 6:48:51 AM

Page 1

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube



Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

## Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2620

Manufactured

No

110

Each

18.0000

1

1



Skidtube, 206 Skidtube

### Location

### Loc Qty

### Loc Code

LG

18

68136

1

71616

5

71617

12

D3286-1

Manufactured

No

110

Each

32.0000

2

2



Doubler

### Location

### Loc Qty

### Loc Code

LG002

32

52844

11

64563

21

D2647

Manufactured

No

110

Each

44.0000

1

1



Cap

### Location

### Loc Qty

### Loc Code

LG002

44

55352

14

71171

30

11-9-15

Sh

11/09/15

BE 11/09/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Friday, August 26, 2011 6:48:51 AM

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube

Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

CR3212-4-04

Purchased

No

180

Each

555.0000

52

52



Cherry Rivet

Location

Loc Qty

Loc Code

ST311

119017

555

116471

78

117816

477

55

D2654-3

Manufactured

No

180

Each

4.0000

1

1



Web

Location

Loc Qty

Loc Code

LG

4

64876

4

200

Each

46.0000

20

20

D2649

Manufactured

No



Cross Bolt Spacer

Location

Loc Qty

Loc Code

LG

34

68224

2

71355

2

72704

30

LG001

12

65317

1

68507

11

200

Each

27.0000

2

2

D3286-3

Manufactured

No



Spacer

Location

Loc Qty

Loc Code

LG002

27

64564

27

DP 11-12-3

DP 11-12-3

BE11-12-05

B73859 x20

BE11-12-05

B74870 x2

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Friday, August 26, 2011 6:48:51 AM

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube

Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

CCR264SS3-3

Purchased

No

210

Each

459.0000

2

2



Cherry Rivet

Location

Loc Qty

Loc Code

FP-B

2

113973

2

ST311

457

117086

31

117849

426

CR3212-4-03

Purchased

No

210

Each

1,158.000

2

2



Cherry Rivet

Location

Loc Qty

Loc Code

FP-B

2

110139

2

ST311

1156

11907

1156

114859

D2680-041

Manufactured

No

210

Each

19.0000

1

1



Nut Plate

Location

Loc Qty

Loc Code

ST020

19

55366

17

70088

2

D3805-043

Manufactured

No

270

Each

0.0000

1

1



Wearplate Assembly Fwd, High Gear

D3805-047

Manufactured

No

270

Each

0.0000

1

1



Wearplate Assembly Aft, High Gear

DP 11-12-5

2

DP 11-12-5

2

DP 11-12-5

1

B77429(x1) M ul 12/14

B77430(x1) M ul 12/14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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**NOTE:** Date & initial all entries

# Picklist Print

Friday, August 26, 2011 6:48:51 AM

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube

Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

AN3-37A

Purchased

No

270

Each

281.0000

7

7



Bolt



M119086(x7) M 11/2/14

Location

Loc Qty

Loc Code

ST353

231

111668

131

118628

100

ST354

50

117619

50

AN960C10L

NAS1149C0332

Purchased

No

270

Each

0.0000

7

7



washer



M119736(x7) M 11/2/14

MS21042L3

Purchased

No

270

Each

1,783.000

7

7



Nut



M119075(x7) M 11/2/14

Location

Loc Qty

Loc Code

ST300

1783

117441

150

117601

400

117885

233

118451

1000

D3873-1

Manufactured

No

270

Each

201.0000

14

14



Bushing



B373832 (x14) M 11/2/14

Location

Loc Qty

Loc Code

ST084

36

68247

36

ST088

165

64760

1

70690

63

71837

101

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Friday, August 26, 2011 6:48:52 AM

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube

Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

AN960JD10L NAS1149D0332J Purchased ☒ No

270 Each

0.0000

2 2



11118389 (x2) HU 11/12/11

Washer

MS27039-1-08 Purchased ☐ No

270 Each

902.0000

2 2



11118910 (x2) HU 11/12/11

Screw

Location

Loc Qty

Loc Code

ST291

902

115108

202

117423

300

118378

400

D2651-1 Manufactured ☐ No

270 Each

289.0000

8 8



B73827 (x8) HU 11/12/11

Plug

Location

Loc Qty

Loc Code

fpa

109

69018

109

FP-A

180

57869

1

66445

10

67760

36

70691

100

70839

2

71037

31

D2651-3 Manufactured ☐ No

270 Each

294.0000

8 8



B73829 (x8) HU 11/12/11

O-Ring

Location

Loc Qty

Loc Code

FP-A

294

61962

12

66956

282

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Friday, August 26, 2011 6:48:52 AM

Work Order ID: 73136

Parent Item: D206-642-251

Parent Item Name: Replacement Skidtube

Start Date: 8/26/2011

Required Date: 9/9/2011

Start Qty: 1.00

Required Qty: 1.00

MS27039-4-06

Purchased No

270

Each

37.0000

1

1



Screw



1119075C(x) ll ul/2/14

Location

Loc Qty

Loc Code

FP-A

8

115460

8

ST292

29

115460

29

AN960JD416

NAS1149D0463J

Purchased No

270

Each

0.0000

1

1



Washer

D2646

Manufactured No

280

Each

93.0000

1

1



Aft Cap



1373025 C(x) ll ul/2/14

Location

Loc Qty

Loc Code

FP004

46

68280

46

FP006

5

62678

5

FP-4

38

70945

1

71070

37

fp5

4

71038

4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

ITEM	Qty -041	Qty -043	Part Number	Description
1	X		D3804-041	SKIDTUBE ASSEMBLY, 206 A/B LOW
2		X	D3804-043	SKIDTUBE ASSEMBLY, 206 A/B HIGH
5	1	1	D2600-1-160	EXTRUSION
6	1	1	D2646	AFT CAP
7	1	1	D2647	CAP
8	19	20	D2649	CROSS BOLT SPACER
9	6	8	D2651-1	PLUG
10	6	8	D2651-3	O-RING
11		1	D2654-3	WEB
12	1		D2654-1	WEB
13	1	1	D2680-041	NUT PLATE
14	2	2	D3286-1	DOUBLER
15	2	2	D3286-3	STUD
21	2	2	AN960JD10L	WASHER
22	1	1	AN960JD416	WASHER
23	2	2	CCR264SS3-3	RIVET
24	2	2	CR3212-4-03	RIVET
25	52	52	CR3212-4-04	RIVET
26	2	2	MS27039-1-08	SCREW
27	1	1	MS27039-4-06	SCREW

#### NOTES

- 1) MATERIAL: N/A
- 2) FINISH: -CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
-POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) BLACK ANTI-SKID PAINT AS INDICATED TO 0.5 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 7) IDENTIFICATION: NONE
- 8) WEIGHT: 12.5 lb
- 9) WELD PER DART QSI 004
- 10) BENDING: DAMAGE TOLERANCE ON FWD BEND:  
THERE SHOULD BE NO VISIBLE WRINKLES IN THE BEND FROM THE GROUND TO A HEIGHT OF 5 INCHES ABOVE THE GROUND. IT IS ACCEPTABLE TO POLISH OUT GOUGES UP TO 0.020 DEEP IN THE BENT PORTION OF THE TUBE. A MAXIMUM REDUCTION IN DIAMETER OF 0.150" IS ACCEPTABLE IN THE BENT PORTION OF THE TUBE.
- 11) BOND WEB INTO OUTER TUBE WITH SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015
- 12) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE)

**RELEASED**  
UP 09-07-07  
per ECN 09-536

# 73136

A	NEW ISSUE	MB	08.07.07
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.07.07		

**DART AEROSPACE USA, INC**  
PORT HADLOCK, WA

DRAWING NO. D3804  
REV. A  
SHEET 1 OF 5

TITLE  
SKIDTUBE ASSEMBLY, 206A/B  
SCALE  
NTS

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

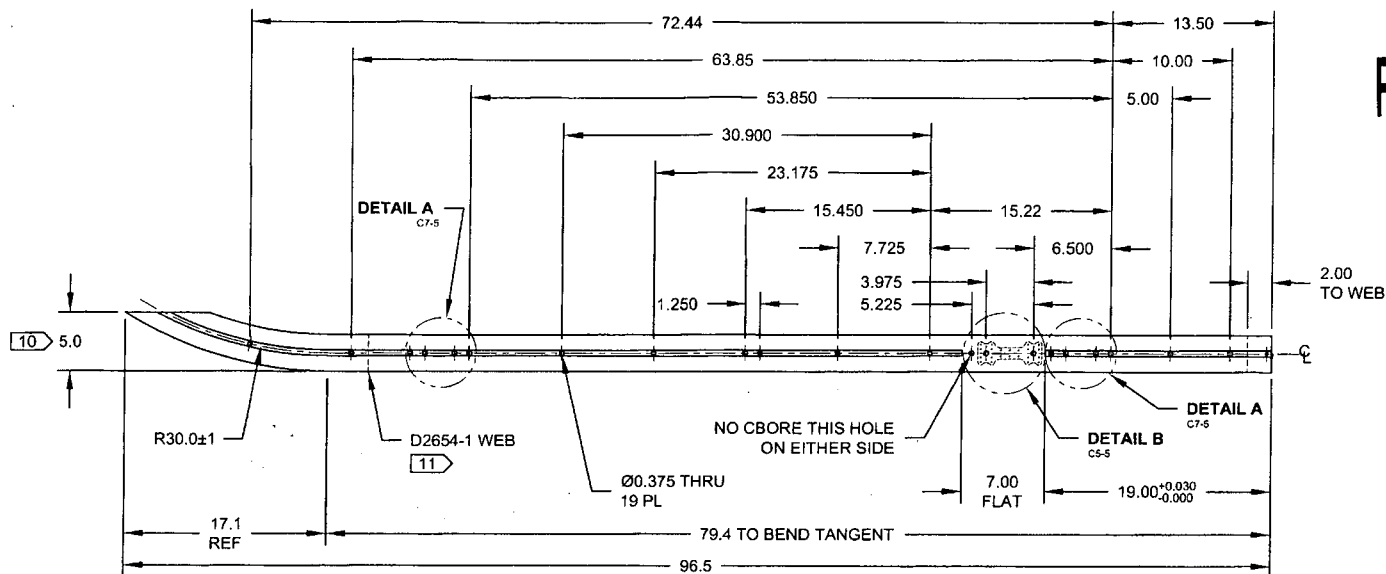
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

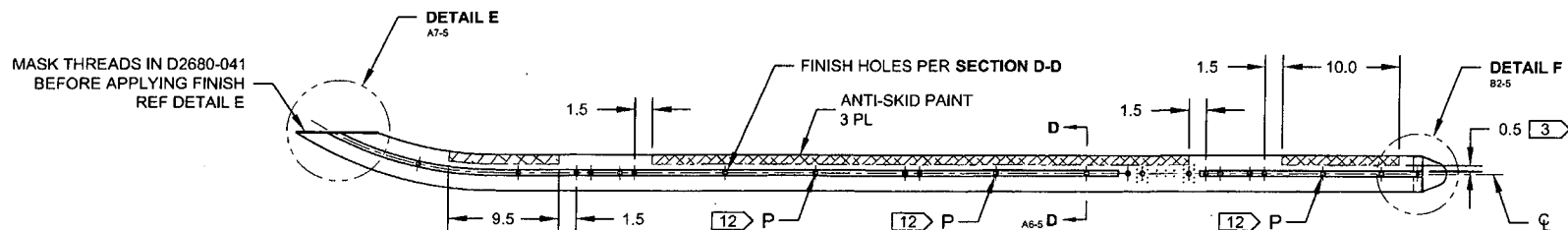
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

RELEASED  
09.03.03



**D3804-041 BENDING/DRILLING DETAIL**



**D3804-041 ASSEMBLY/FINISHING DETAIL**

#73130

DESIGN	97	<b>DART AEROSPACE USA, INC</b>	
DRAWN	J	PORT HADLOCK, WA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D3804	SHEET 2 OF 5
APPROVED	97	TITLE	SCALE
DE APPR.	97	SKIDTUBE ASSEMBLY, 206A/B	NTS
DATE	08.07.07	COPYRIGHT © 2008 BY DART AEROSPACE USA, INC	
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

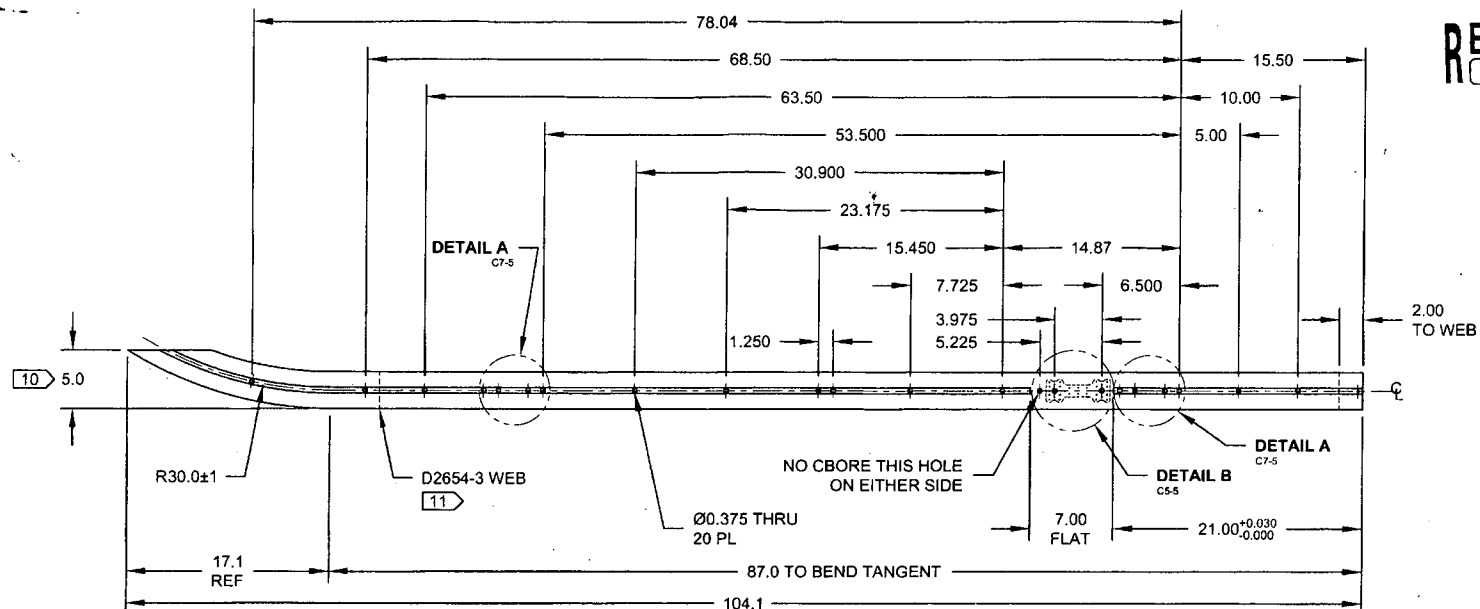
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

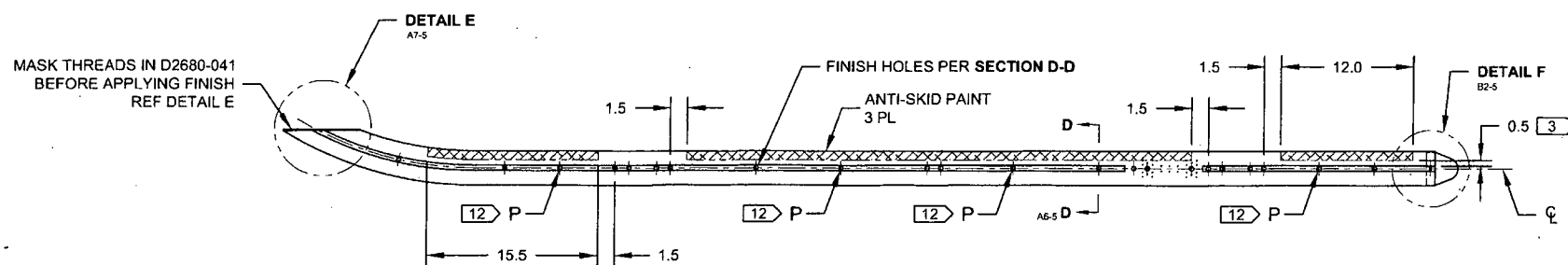
**NOTE:** Date & initial all entries



RELEASED  
(09-03-03)



**D3804-043 BENDING/DRILLING DETAIL**



**D3804-043 ASSEMBLY/FINISHING DETAIL**

#7336

DESIGN	91	<b>DART AEROSPACE USA, INC</b>	
DRAWN	1	PORT HADLOCK, WA	
CHECKED	2	DRAWING NO.	REV. A
MFG. APPR.	3	D3804	SHEET 3 OF 5
APPROVED	4	TITLE	SCALE
DE APPR.	5	SKIDTUBE ASSEMBLY, 206A/B	NTS
DATE	08.07.07	<small>COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

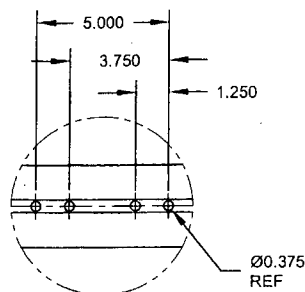
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

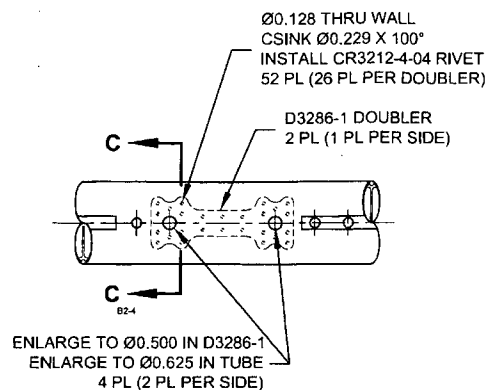
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

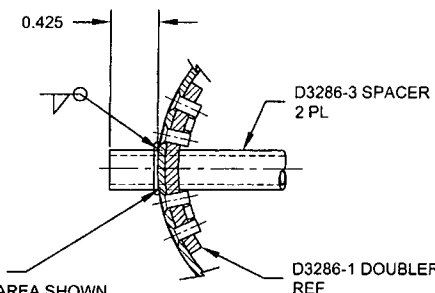
RELEASED  
CP 09 05 03



**DETAIL A**  
D6-2  
C2-2  
D6-3  
C2-3  
SCALE NONE

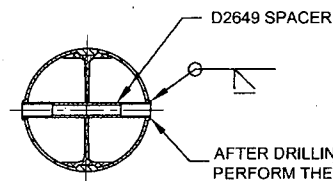


**DETAIL B**  
C3-2  
C3-3  
SCALE NONE



- TO INSTALL D3286-1/-3:
1. GRIND OFF FLANGE IN AREA SHOWN, FLUSH WITH OUTSIDE SURFACE OF ROUND TUBE
  2. LOCATE & DRILL D3286-1 DOUBLER USING DT3286-1T1
  3. ENLARGE HOLES IN D3286-1 TO Ø0.500
  4. ENLARGE HOLES IN TUBE TO Ø0.625 AND CHAMFER HOLE 0.03 X 45°
  5. RIVET D3286-1 TO TUBE
  6. INSERT D3286-3 SPACER
  7. WELD IN PLACE AND GRIND FLUSH

**SECTION C-C**  
C6-4  
PARTIAL SECTION  
SCALE NONE



- AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR Ø0.375 HOLES ONLY:
1. CHAMFER HOLE 0.03 X 45°
  2. INSERT D2649 SPACER
  3. WELD INTO PLACE AND GRIND FLUSH
  4. CBORE TO Ø0.313 X 0.75 DP (EXCEPT WHERE INDICATED)

**SECTION D-D**  
A4-2  
A4-3  
FOR Ø0.375 HOLES ONLY  
SCALE NONE

#73136

DESIGN	97	<b>DART AEROSPACE USA, INC</b>	
DRAWN	97	PORT HADLOCK, WA	
CHECKED	97	DRAWING NO.	REV. A
MFG. APPR.	97	D3804	SHEET 4 OF 5
APPROVED	97	TITLE	SCALE
DE APPR.	97	SKIDTUBE ASSEMBLY, 206A/B	NTS
DATE	08.07.07	<small>COPYRIGHT © 2008 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

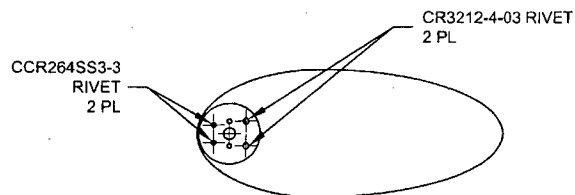
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

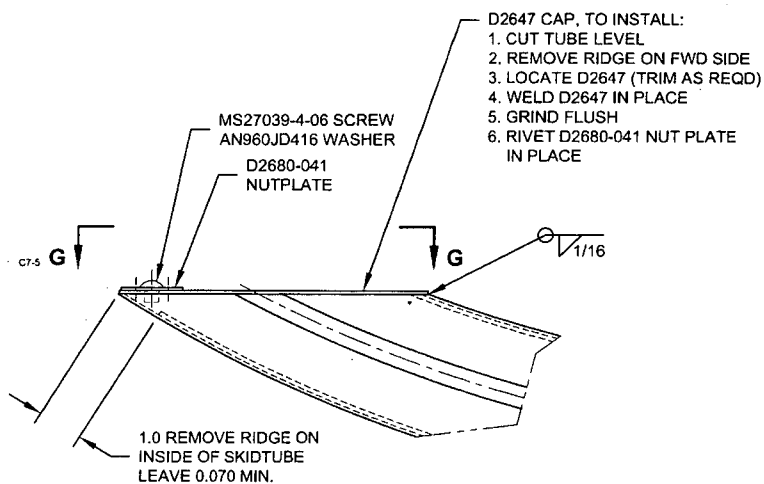
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

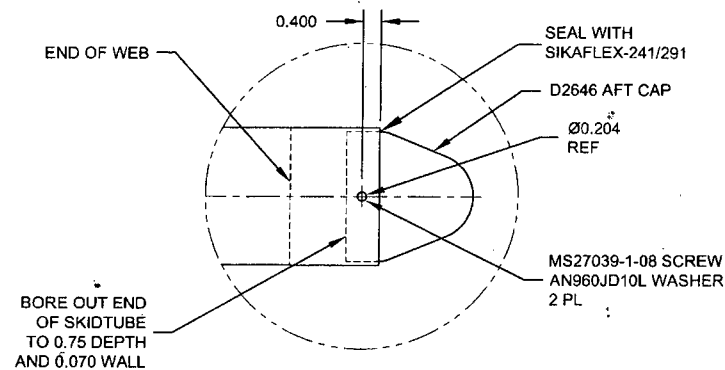
RELEASED  
07 09.03.03



**VIEW G-G**  
SCALE NONE A7.5



**DETAIL E**  
SCALE NONE B7.2 B7.3



**DETAIL F**  
SCALE NONE B2.2 B2.3

#73136

DESIGN	07	<b>DART AEROSPACE USA, INC</b>	
DRAWN	J	PORT HADLOCK, WA	
CHECKED	07	DRAWING NO.	REV. A
MFG. APPR.	B	D3804	SHEET 5 OF 5
APPROVED	07	TITLE	SCALE
DE APPR.	07	SKIDTUBE ASSEMBLY, 206A/B	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

RELEASED  
09 09.03.03

CCR264SS3-3  
RIVET  
2 PL

CR3212-4-03 RIVET  
2 PL

**VIEW G-G**  
SCALE NONE A7-5

MS27039-4-06 SCREW  
AN960JD416 WASHER

D2680-041  
NUTPLATE

D2647 CAP, TO INSTALL:  
1. CUT TUBE LEVEL  
2. REMOVE RIDGE ON FWD SIDE  
3. LOCATE D2647 (TRIM AS REQD)  
4. WELD D2647 IN PLACE  
5. GRIND FLUSH  
6. RIVET D2680-041 NUT PLATE  
IN PLACE

1.0 REMOVE RIDGE ON  
INSIDE OF SKIDTUBE  
LEAVE 0.070 MIN.

G7-5 G

1/16

**DETAIL E**  
SCALE NONE B7-2  
B7-3

0.400

END OF WEB

SEAL WITH  
SIKAFLEX-241/291

D2646 AFT CAP

Ø0.204  
REF

MS27039-1-08 SCREW  
AN960JD10L WASHER  
2 PL

BORE OUT END  
OF SKIDTUBE  
TO 0.75 DEPTH  
AND 0.070 WALL

**DETAIL F**  
SCALE NONE B2-2  
B2-3

# 7237

DESIGN	99	<b>DART AEROSPACE USA, INC</b>	
DRAWN	J	PORT HADLOCK, WA	
CHECKED	0	DRAWING NO.	REV. A
MFG. APPR.	B	D3804	SHEET 5 OF 5
APPROVED	74	TITLE	SCALE
DE APPR.	11	SKIDTUBE ASSEMBLY, 206A/B	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



NO. 274

AWS D17.1.2001  
QUALIFICATION TEST RECORD

Name: Barclay Elliott  
Job number: 75391  
Part number: 206 642 151  
Description: 206 skid tube  
Welding Process: Tig[☒] Mig[ ]  
Base material: Aluminum  
Current: AC[ ] DC[ ]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[ ]  
Penetration: pass[☒] fail[ ]

UNACCEPTABLE

Cracks: pass[☒] fail[ ]  
Undercut: pass[☒] fail[ ]  
Pin holes: pass[☒] fail[ ]  
Overlap (cold lap): pass[☒] fail[ ]  
Porosity (surface): pass[☒] fail[ ]  
Coloration: pass[☒] fail[ ]

Qualifier Sal Dunn Date of Test Coupon 11-11-18

Welder Sal Dunn Date of Test Coupon 11-11-18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld